

Unit 2 Review (Ch. 4, 5 in book)

• 5 Number Summary

Minimum	} on calculator
Q_1	
Median (Q_2)	
Q_3	
Maximum	

• Other statistics:

Mode: Number (bin) that has the most counts

(one number)

Range = Maximum - minimum

(one number)

$$IQR = Q_3 - Q_1$$

$$\text{mean} = \frac{\sum x}{n} = \bar{x}$$

(on calculator)

Standard Deviation (on calculator)

$$S_x = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

Variance

$$S_x^2 = \frac{\sum (x - \bar{x})^2}{n - 1}$$

- Calculator Skills

- Stat \rightarrow Edit \rightarrow input data into the list

- Stat \rightarrow Right arrow \rightarrow Calc \rightarrow
1-Var Stats (same list as the one data is in) \rightarrow Down arrow for more information

- Outliers

- Points outside fences

$$\text{upper fence} = Q_3 + (1.5)IQR$$

$$\text{lower fence} = Q_1 - (1.5)IQR$$

- Graphical Displays

- Dot plots
- Stem and Leaf
- Histograms
- Boxplots

- Stem and Leaf

- Break data into "leading" digits and "last" digit

- Example

0		1 1 3
1		4 7 9
2		0 7

- Histograms

- Bin widths must be the same
- Bars are touching \rightarrow no bar means no data
- X-axis \rightarrow quantitative variable
- Y-axis \rightarrow frequency (count) or relative frequency (%)

- Boxplots

- Basically a graphical representation of the 5 number summary
- Easy to see outliers
- Before drawing whisker, calculate fences.
- Whiskers go to highest/lowest point inside the fence

- Shape of Graphs

- Symmetry 

- Skewed → towards tails, which are low points of data

- Modality → Uniform, unimodal, bimodal, multimodal

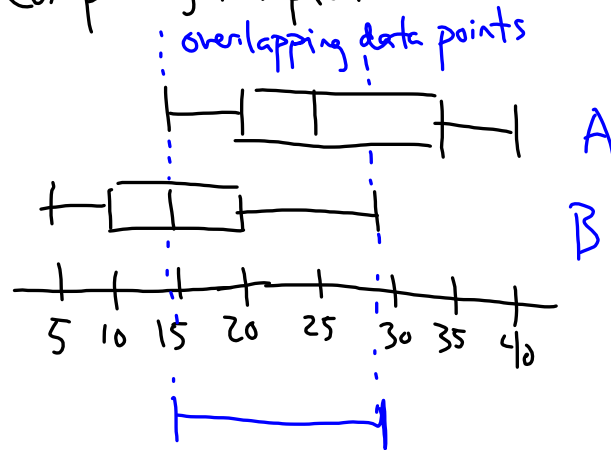
- Graph Shifts

- Some statistics stay the same and some change

- Stay the same → Range, Modality, IQR, Variance, Standard deviation

- Change → 5 Number Summary, Mean, mode

- Comparing Boxplots



- Calculate GPA

A: 4.0 B: 3.0 C: 2.0 D: 1.0

Class	Hours	Grade	Quality Points
1	4	A (4.0)	16.0
2	3	A (4.0)	12.0
3	3	C (2.0)	6.0
4	3	B (3.0)	9.0
5	1	D (1.0)	1.0
	<u>14</u>		<u>44.0</u>

$$\text{GPA} = \frac{\text{Quality points}}{\text{hours}} = \frac{44.0}{14} = 3.14$$

$$= \frac{(\text{hours } 1)(\text{grade } 1) + (\text{hours } 2)(\text{grade } 2) + (\text{hours } 3)(\text{grade } 3) + (\text{hours } 4)(\text{grade } 4) + (\text{hours } 5)(\text{grade } 5)}{\text{hours}}$$

$$= \frac{\sum (\text{hours})(\text{grade})}{\text{hours}}$$